PROCEDURES FOR UPDATING PREQUALIFICATION FOR ENGINEERING AND RELATED SERVICES WITH THE DEPARTMENT OF HIGHWAYS

KRS Chapter 45A requires that consulting firms desiring to be pre-qualified with the Transportation Cabinet provide annual updates of their qualifications. The anniversary date is the date of the letter from the Cabinet granting approval of the firm's pre-qualification request. This shall establish the firm's annual renewal date by which the firm is expected to have renewed its qualifications with the Cabinet.

It is the sole responsibility of the firm to initiate a renewal of its pre-qualification with the Cabinet. The Cabinet does not send notices of a need to renew.

If the firm makes no effort within 30 days of its annual renewal date, then the firm is automatically removed from the Cabinet's listing of pre-qualified consultants.

Each year, 30 days prior to the firm's annual renewal date, it must submit an updated Pre-qualification Application Form TC 40-1 for review by the Cabinet's Pre-qualification Committee.

If the firm has undergone significant modifications to its organization, staffing or financial status which could affect the firm's qualification status with the Cabinet, then a revised pre-qualification application is required at the time those changes occur and no later than 30 days prior to the firm's annual renewal date.

Please direct requests for pre-qualification forms (TC 40-1) and questions the status of pre-qualification actions to:

Mrs. Clairessa Hamilton
Division of Professional Services
State Office Building - Mail Code 6-2
Frankfort, Kentucky 40622
Phone: (502) 564-4555

ENGINEERING AND RELATED SERVICES PREQUALIFICATION

CRITERIA

The following criteria should be used by the Highway Department's User Divisions in evaluating a firms qualifications in the requested categories or sub-categories. Acceptable experience of a firm requesting pre-qualification in a category of work may result from satisfactory work performed by an individual(s) working for the requesting firm or by an individual(s) who gained the required experience while working for another firm or governmental agency that performed similar work or projects. The Division of Professional Services, the External Audit Branch, the User Divisions or the Pre-qualification Committee may request additional documents to supplement information provided in a submitted pre-qualification form.

Engineering Service User-Highway Design Division (502-564-3280)

RURAL ROADWAY DESIGN - A firm shall have at least two (2) engineers registered in Kentucky, one of which will be directly involved in project development. The licensed engineer shall have demonstrated capabilities by education and/or experience to perform rural roadway design activities. Staffing shall be adequate to perform the bulk of work on an average size project. The personnel employed by the firm shall have expertise in roadway design through previous experience, specialized training, education or a combination thereof. The overall qualification of a firm to perform roadway design will be evaluated on the basis of past performance whether for the Transportation Cabinet or another agency. A firm requesting pre-qualification solely based on work with other agencies shall provide sufficient information to allow for an evaluation of paste performance with that agency. This information must include the name of an individual within that agency directly responsible for the project and may include performance evaluation documents, letters from the agency addressing past performance or other similar documents. Equipment shall be adequate to provide plans and studies utilizing computer graphics and digital terrain modeling techniques for an average type of project and to a format specified by the Cabinet's Division of Design. Sufficient financial information should be provided to demonstrate the stability of the firm during the pre-qualification period. (REVISED 3/02)

RURAL ROADWAY DESIGN (SMALL PROJECTS) - A firm with only one (1) engineer licensed in Kentucky or with no previous experience may be pre-qualified for small projects providing sufficient information is furnished on the other factors which demonstrate adequate capabilities for design. A small project is defined to be one for which the total estimated design fee is less than $250,000.00. (REVISED 3/02)

URBAN ROADWAY DESIGN - A firm shall satisfy the criteria set forth for Rural Roadway Design. Additional criteria required for urban projects shall include experience and/or training in traffic flow Analysis, intersection channelization, urban geometrics, urban storm water modeling and other related topics. (REVISED 7/94)

SURVEYING - A firm shall have a minimum on one (l) land surveyor licensed in Kentucky. Staff shall be adequate to perform surveying activities on an average size project. Personnel used by the firm shall have demonstrated experience and knowledge of standard surveying practices. Adequate equipment to provide digital data and computer graphics necessary for modern surveying practices must be available. (REVISED 3/02)

PHOTOGRAMMETRY AND RELATED SERVICES - A firm shall have the necessary equipment to produce photographic mapping in accordance with current Cabinet standards and format. Personnel shall be adequately trained or have experience in aerial mapping and be of sufficient numbers to accommodate a reasonable schedule on any project. Additionally, personnel to handle monumentation and control surveys are desirable but not essential for pre-qualification. A certified photogrammetrist shall be on staff and be responsible for the coordination of work on projects. (REVISED 7/94)

Engineering Service User-Bridge Design Division (502-564-4560)

STRUCTURE DESIGN -

Initial Pre-qualification - A firm will provide all information required for the individual areas for which pre-qualification is requested. An alphabetized listing of the firm's staff with appropriate professional status, areas in which each person works (i.e., -Environmental, Highway Design, etc.), and an identification of whether they are full time or part time employees will be provided. A full time employee is defined as one who has eligibility to participate in the firm's benefits program. In addition, an officer of the firm must attest that the firm is financially solvent and have a working arrangement with financial institutions such that all outstanding financial obligations will be met.

Spans Less than 500 feet (Including Culvert Design)

A firm will have a minimum of two (2) full time (as defined by eligibility to participate in the firm's benefits programs) employees that are directly involved in structure design. Part time employees may not be used to address the basic requirements for full time staff. Part time employees may be shown as a part of the total staff size. An explanation of the availability of part time employees including hours available throughout the year and hours available for projects may be used to enhance the firm's experience history.

One of the full time employees must be a Professional Engineer registered in Kentucky. The Professional Engineers submitted for pre-qualification will be directly involved in structural design. The registered Professional Engineer will also have experience in structure design as demonstrated by the successful completion of at least five (5) projects.

Firms that have not previously performed structure design for the Department may be required to submit sample plans for structures designed by the firm or by structural engineers employed by the firm.

Spans Greater than 500 Feet

A firm will have a minimum of four (4) full time (as defined by eligibility to participate in the firm's benefits programs) employees that are directly involved in structure design. Part time employees may not be used to address those basic requirements for full time staff. Part time employees may be shown as a part of the total staff size. An explanation of the availability of part time employees including hours available throughout the year and hours available for projects may be used to enhance the firm's experience history.

Two of the full time employees must be Professional Engineers registered in Kentucky. The Professional Engineers submitted for pre-qualification will be directly involved in structure design of spans greater than 500 feet. The registered Professional Engineers will also have experience in structure design as demonstrated by the successful completion of at least two (2) projects with spans greater than 500 feet.

A firm must demonstrate experience in designing bridges with span lengths greater than 500 feet by the submission of sample plans designed by the firm or by structural engineers employed by the firm.
Performance-based Pre-qualification and Renewal

The single best indicator of firm viability is a strong history of performance. Firms with a proven track record will be pre-qualified unless conditions of their previous pre-qualification status change. A firm's renewal of pre-qualification status will be based on a satisfactory performance on current projects and an affirmation by an officer of the firm that the registered professional engineers identified in previous submittals for pre-qualification remain in that visible function, no equipment requirements have been listed previously and that the firm is financially solvent and has working arrangements with financial institutions such that all outstanding financial obligations may be met. Any changes in any of these conditions must be submitted as part of the annual request for renewal. Failure to submit information on such changes can lead to the firm's removal of pre-qualification.

Reasons for Removal of Pre-qualification

A firm's project performance will be a basis for continued pre-qualification. As stated above, under the Qualification-Based Selection (QBS) process, performance is an important indicator of a firm's ability to product the required plans or other product. Removal of pre-qualification will therefore be based on a firm's failure to perform in a professional and capable manner. Failure to meet schedules on items within the consultant's responsibility will also be a basis for removal of pre-qualification. Removal from pre-qualification will generally be for one year. Re-evaluation of conditions after that year indicating continued non-performance might lead to continued denial of pre-qualification on a year by year basis.

In addition to the criteria listed above, the deliberate misrepresentation of the firm's qualification and/or the failure to notify the Cabinet of significant changes in the staffing situation of economic condition of a firm will result in the loss of the pre-qualification status for a period of at least one year. The failure to correct the identified deficiencies will result in the continued denial of pre-qualification on a year by year basis. (REVISED 3/02)

Engineering Service User-Traffic Division (502-564-3020)

TRAFFIC ENGINEERING SERVICES - A firm must have a minimum of one registered professional engineer on staff who can demonstrate expertise in the field of traffic engineering. The following is a list of subjects in which a qualified traffic engineer would be knowledgeable:

Traffic Flow Theory
Urban Operations
Geometric Design
Accident Analysis
Transportation Site Impact Analysis
Isolated Traffic Signal and System Operation
Highway Capacity
Parking Studies and Characteristics
Intersection Control (Non-Signalized and Signalized)

These subjects can be studied through individual courses or as a part of an overall course in traffic engineering. This knowledge can be obtained through courses offered by schools of recognized standing or organizations such as the Institute of Transportation Engineers and the Federal Highway Administration.

Expertise may also be obtained through a minimum of five years of professional engineering experience in the area of traffic engineering. Expertise may also be obtained through a combination of professional engineering experience in the highway design and/or construction area which is supplemented by continuing education workshops which include the subjects identified in the above listed criteria. (REVISED 7/94)

ELECTRICAL ENGINEERING SERVICES - A firm must have a minimum of one registered professional engineer who can demonstrate experience in electrical engineering. The firm must demonstrate knowledge and experience in the areas of traffic signalization, traffic signal systems and roadway and bridge lighting, including high-mast lighting. (REVISED 7/94)

Engineering and Related Service User-Construction Division (502-564-4780)

CONSTRUCTION PROJECT SUPERVISION - The Consultant shall provide engineering and related services to include detailed construction engineering and inspection of materials and workmanship for highway construction in accordance with current Department of Highways standards and procedures. Inspections must be familiar with Kentucky Standard Specifications and sampling and testing requirements.

The consultant engineering firm must provide a minimum of one professional engineer with registration in Kentucky, who can demonstrate highway construction Knowledge and experience, on site as a Project Engineer. The firm must also be capable of providing home office support such as additional personnel, direction and equipment when necessary. (REV 7/94)

Bridge Painting Project Inspection – The consultant firm shall provide the number of inspectors as requested by the Kentucky Transportation Cabinet for on site field inspection of the bridge painting project. The inspector(s) will use paint inspection instruments, visual inspection, and industry standards to inspect the contractors work and enforce the Kentucky Standard Specifications and Special Notes. The inspector(s) shall keep complete and accurate daily records of all work performed and the materials used in accordance with the Division of Construction Guidance Manual and guide lines set forth in the Kentucky Qualified Bridge Coatings Inspection Technician Training.

The inspection will include but not be limited to: inspect all work for acceptance, document work activities and complete daily reports, provide visual and instrument inspections of surface preparation and coatings applications to ensure conformance to applicable specifications, containment and emissions monitoring, monitor work for compliance with KYOSHA, OSHA, and EPA and state guidelines as specified.

The firm will provide inspector(s) who have successfully completed the Kentucky Qualified Bridge Coatings must demonstrate experience and knowledge of on site bridge painting inspection and record keeping. The inspector(s) must be capable of handling the physical requirements needed to access and perform arms length inspection of the entire project structure. (Rev 6/03)

Bridge Painting Project Management – The Consultant shall provide bridge painting project management and related services to include detailed daily reporting, project coordination and contractor and State/District personnel, FHWA/KMIMS pay estimates and inspection of workmanship in accordance with current Department of Highways standards, procedures and project special notes. Manager and inspectors must be familiar with Kentucky Standard Specifications, Division of Construction Guidance Manual 63-01, partnering, sampling, testing and inspection requirements and project special notes.

The consultant firm must provide a minimum of one Project Manager, who can demonstrate bridge painting project management/supervision, reporting, documentation and computation of pay estimates and inspection knowledge and experience, as an on site project manager. The firm must be capable of providing home office support such as direction, additional support personnel, equipment and an on site field office with computer and internet capabilities.

The firm shall provide on site field inspection of the bridge painting project. The inspector(s) will use paint inspection instruments; visual inspection and industry standards to inspect the contractors work and enforce the Kentucky Standard Specifications and Special Notes. The inspector(s) shall keep complete and accurate daily records of all work performed and the materials used in accordance with the Division of Construction Guidance Manual and guide lines set forth in the Kentucky Qualified Bridge Coatings Inspection Technician Training.

The inspections will include but not be limited to: inspect all work for acceptance, document work activities and complete daily reports, provide visual and instrument inspections of surface preparation and coatings applications to ensure conformance to applicable specifications, containment and emissions monitoring, monitor work for compliance with KYOSAHA, OSHA and EPA and state guidelines as specified.

The firm must provide an adequate number of inspectors to provide complete quality assurance field inspections. The inspectors will have successfully completed the Kentucky Qualified Bridge Coatings Inspection Technician Training and maintain their qualification for the duration of the project. The inspector(s) must demonstrate experience and knowledge of on site bridge painting inspection and record keeping. The inspector(s) must be capable of handling the physical requirements needed to access and perform arms length inspection of the entire project structure. (Rev 6/03)

STRUCTURAL STEEL FABRICATION INSPECTION - The inspection will include performing all radiography, ultrasonic, magnetic particle and dye penetrate testing of welds as required and visual inspection to insure fabrication in accordance with applicable specifications level two (2) nondestructive testing inspectors for magnetic particle and ultrasonic or radiographic testing.

Consultant engineering firms must have a minimum of one registered professional engineer who can demonstrate knowledge and experience in welding theory, techniques, procedures and inspections. Registration in Kentucky is not necessarily required. (REVISED 7/94)

CONSTRUCTION SCHEDULING/CLAIMS ANALYSIS - The analysis shall consist of construction contract claims and scheduling to define issues and establish strategy of defense of claim; preparation and documentation of reports, graphics, charts, exhibits and schedules; calculation and documentation of delays, recoverable damages, loss of productivity, inefficiencies and other causes of claims.

Key staff members of the firms should consist of civil engineers, attorneys and certified public accountants experienced in claims review and evaluation. Consultant personnel must have at least five (5) years' experience in claim review. The firm must have a minimum of one registered professional engineer who can demonstrate knowledge and experience in computerized construction project critical path scheduling. Engineers must be registered but not necessarily in Kentucky. (REVISED 7/94)

Engineering Service User-Transportation Planning Division (502-564-7183)

TRANSPORTATION PLANNING/CORRIDOR PLANNING -

A firm shall provide all information for the individual areas for which pre-qualification is requested. An alphabetized listing of the firm's staff with appropriate professional status, areas in which each person works (i.e., highway planning environmental, etc) and an identification of whether they are full time or part time employees shall be provided. A full time employee is one full time or part time employees shall be provided. A full time employee is one who has eligibility to participate in the firm's benefits program. In addition, an officer of the firm must attest that the firm is financially solvent.

Highway Planning Services

A firm shall provide evidence to the Kentucky Transportation Cabinet of (1) knowledge of acceptable practices and (2) prior experience in the last ten years in highway planning activities to include: collection or acquisition, processing and presentation of transportation-related data; analysis of transportation-related data; traffic forecasting; identification of highway deficiencies and needs; development and evaluation of alternative solutions to meet those needs; preparation of cost estimates for proposed improvements; selection and scheduling of recommended improvements; public involvement; and financial analysis to identify and evaluation funding priorities and options for proposed improvements

Information relating to past experience in those areas listed in Item A shall be submitted for the firm's current staff. This information should include applicable education, training, and work experience. The employees in the firm primarily responsible for the project should be identified and their roles should be clearly explained.
Projects shown in a firm's experience that are not for the Kentucky Transportation Cabinet shall include the name of an individual directly responsible for the project and any performance evaluations or other documentation received at the conclusion of the project.

In addition, a minimum of one report by the firm shall be submitted showing evidence of the requirements in Item A.

The firm shall provide a listing of all equipment available for the development of product deliverables, including hardware and software and demonstrate the firm's knowledge and previous use of data collection, mapping and/or other equipment and programs, as needed.

Performance-Based Pre-qualification and Renewal

The single best indicator of firm viability is a strong history of performance. Firms with a proven track record shall be pre-qualified unless conditions of their previous pre-qualificaiton status change. A firm's renewal of pre-qualification status shall be based on the criteria in Item A and on satisfactory performance. If applicable, the renewal application shall include an affirmation by an officer of the firm stating that the employees identified in previous submittals for pre-qualification remain in that function, that no reduction of equipment has occurred since the previous submittal, and that the firm is financially solvent. Any changes in any of these conditions must be submitted as part of the request for renewal. Failure to submit information on changes can lead to the firm's removal of pre-qualification.

Reasons for Removal of Pre-qualification

A firm's project performance shall be a basis for continued pre-qualification. As stated above, under the Qualification-Based Selection (QBS) process, performance is an important indicator of the firm's ability to produce the required deliverables identified in the scope of work. Removal of pre-qualification will therefore be based on a firm's failure to perform in a professional and capable manner. Failure to meet schedules on items within the consultant's responsibility will also be a basis for removal of pre-qualification. Removal from pre-qualification will generally be for one year. Re-evaluation of conditions after that year indicating continued non-performance might lead to continued denial of pre-qualification on a year by year basis.

In addition to the criteria listed above, the deliberate misrepresentation of the firm's qualifications and /or the failure to notify the Cabinet of significant changes in the staffing or economic condition of a firm shall result in the loss of pre-qualification status for a period of at least one year. The failure to correct the identified deficiencies will result in the continued denial of pre-qualification on a year by year basis.

Transportation Corridor & Systems Planning

A firm shall provide all information for the individual areas for which pre-qualification is requested. An alphabetized listing of the firm's staff with appropriate professional status, areas in which each person works (i.e., highway planning environmental, etc) and an identification of whether they are full time or part time employees shall be provided. A full time employee is one full time or part time employees shall be provided. A full time employee is one who has eligibility to participate in the firm's benefits program. In addition, an officer of the firm must attest that the firm is financially solvent.

A firm shall provide evidence to the Kentucky Transportation Cabinet of (1) knowledge of acceptable practices and (2) prior experience in the last ten years in the following: (a) multimodal transportation planning at the project and systems level, with particular emphasis on the highway mode, to include: collection or acquisition, processing and presentation of transportation-related data; analysis of transportation-related data; identification of deficiencies and needs; forecasts of traffic and/or other transportation-related data; development and evaluation of alternative solutions to meet those needs; preparation of cost estimates for improvements; selection and scheduling of recommended improvements; and public involvement; (b) economic analysis to evaluate the economic justification of proposed improvements, with emphasis on identifying and comparing all costs and benefits, including facility management and maintenance costs and benefits, user costs and benefits, social and environmental costs and benefits due to business transfers and the generation of new business, as well as subsequent impacts developed through econometric modeling or other economic tools, as appropriate; and (c) financial analysis to identify and evaluate all possible funding options to determine the financial feasibility of proposed improvements.

Information relating to past experience in those areas listed in Item A shall be submitted for the firm's current staff. This information should include applicable education, training, and work experience. The employees in the firm primarily responsible for the project should be identified and their roles should be clearly explained.

Projects shown in a firm's experience that are not for the Kentucky Transportation Cabinet shall include the name of an individual directly responsible for the project and any performance evaluations or other documentation received at the conclusion of the project.

In addition, a minimum of one report prepared by the firm shall be submitted showing evidence of the requirements listed in Item A.

If a firm does not have the required experience in economic analysis, they may acquire it through an outside source. In this case, the experience of the outside source must be documented along with a sample report showing evidence of the required experience. A brief explanation of the anticipated contractual arrangements between the firm and the source of the econometric analysis experience should be documented.

The firm shall provide a listing of all equipment available for the development of product deliverables, including hardware and software, and document or demonstrate the firm's knowledge and previous use of data collection, mapping and/or other equipment and programs, as needed.

Performance-Based Pre-qualification and Renewal

The single best indicator of firm viability is a strong history of performance. Firms with a proven track record shall be pre-qualified unless conditions of their previous pre-qualification status change. A firm's renewal of pre-qualification status shall be based on the criteria in Item A and on satisfactory performance. If applicable, the renewal application shall include an affirmation by an officer of the firm stating that the employees identified in previous submittals for pre-qualification remain in that function, that no reduction of equipment has occurred since the previous submittal and that the firm is financially solvent. Any changes in any of these conditions must be submitted as part of the request for renewal. Failure to submit information on changes can lead to the firm's removal of pre-qualification.

Reasons for Removal of Pre-qualification

A firm's project performance shall be a basis for continued pre-qualification. As stated above, under the Qualification-Based Selection (QBS) process, performance is an important indicator of the firm's ability to produce the required deliverables identified in the scope of work. Removal of pre-qualification will therefore be based on a firm's failure to perform in a professional and capable manner. Failure to meet schedules on items within the consultant's responsibility will also be a basis for removal of pre-qualification. Removal from pre-qualification will generally be for one year. Re-evaluation of conditions

after that year indicating continued non-performance might lead to continued denial of pre-qualification on a year-by-year basis.

In addition to the criteria listed above, the deliberate misrepresentation of the firm's qualifications and/or the failure to notify the Cabinet of significant changes in the staffing or economic condition of a firm shall result in the loss of pre-qualification status for a period of at lease one year. The failure to correct the identified deficiencies will result in the continued denial of pre-qualification on a year by year basis.

Road Centerline Data Collection

Road Centerline data collection is to be collected in accordance with the Standards for Road Data Collection Using Global Positioning System Techniques located at the following web site: http://www.kytc.state.ky.us/planning/gisourky/Documents/Standardsall.pdf

The road centerline data is to be collected using equipment compatible with or equal to a twelve channel Trimble Pro XRS receiver with Trimble ASPEN data collection software. Centerlines are to be captured as line features with a collection interval of one position per second. Road intersections and NGS control points shall use a Trimple TSC1 data logger running Trimble's Asset Surveyor software or equal equivalent. All rover files shall be differentially corrected with the bast available base station data.

Consultant shall use software compatible with Trimble's pathfinder office software to predict the precision of both individual observations and entire features. These estimates should be RMS based. The average horizontal 2dRMS values for road centerline data and point features shall be less than or equal to 2 meters. Precision estimates should be used as a gauge of quality and repeatability and not to be misconstrued as a measurement to or from true feature location.

The GPS coverage shall establish a current, accurate digital transportation data set. The centerline data will be exported into ARC/INFO or its equivalent and converted into an arc coverage, edited, attributed and projected.

Traffic Data Collection

Traffic data includes Volume, Axle Classification, Speed and Length Data. It is to be collected according to the guidelines set forth in the current edition of the Federal Highway Administration's (FHWA) Traffic Monitoring Guide (TMG). Equipment used by the Kentucky Transportation Cabinet (KYTC), Division of Planning, is the Peek ADR Traffic Data Recorders.

Data is to be provided to KYTC in the following formats:

ADR binary files (if Peek ADR Traffic Data Recorders are used).

Peek's Daily, monthly and indexes formats.

Classification Data

Axle classification data is to be collected using FHWA Scheme "F" 13 plus 2 bins. are as follows:

Motorcycles
Passenger Cars - All sedans, coupes and station wagons
Other 2-Axle, 4-Tire Single Unit Vehicles excluding passenger cars.
Buses - buses with two axles and 6 tires or 3 or more axles
Two-Axle, Six-Tire Single Unit Trucks
Three-Axle Single Unit Trucks
Four or More Axle Single Unit Trucks
Four or Less Axle Single Trailer Trucks

Five-Axle Single Trailer Trucks
Six or More Axle Single Trailer Trucks
Five or Less Multi-Trailer Trucks
Six-Axle Multi Trailer Trucks
Seven or More Axle Multi-Trailer Trucks
(reserved for future)
Unknown vehicles
Speed Data

Speed data is to be collected in 13 bins. Bins are as follows:

<25 MPH
25 - 29 MPH
30 - 34 MPH
35 - 39 MPH
40 - 44 MPH
45 -49 MPH
50 -54 MPH
55 - 59 MPH
60 - 64 MPH
65 - 69 MPH
70 - 74 MPH
75 - 79 MPH
>80 MPH
Length Data

Length data is to be collected in 4 bins. Bins are as follows:

<25 Feet
25 to 49.9 Feet
50 to 54.9 Feet
> Feet (REVISED 3/02)
Engineering and Related Service User-MultiModal Programs (502-564-7686)

TRANSPORTATION PLANNING/TRAFFIC FORECASTING -

Part time employees may not be used to address the basic requirement for full time staff. Part time employees may be shown as a part of the total staff size. An explanation of the availability of part time employees may be shown as a part of the total staff size. An explanation of the availability of part time employees including hours available through the year and hours available project may be used to enhance the firms experience history. (Rev 9/03)

Professional Engineer registered in Kentucky must be included in the mix of full time employees dedicated to the project. The Professional Engineer submitted for pre-qualification shall be directly involved in urban transportation study development (field and socioeconomic data collection, public involvement, traffic model development and calibration, systems analysis and related activities). The registered Professional Engineer shall also have experience involved other firms or agencies, the employees role should be clearly explained for each project. Applicable education and technical training shall also be provided.

Information relating to past experience may also be provided for each additional employee to be considered for pre-qualification. The information detailed above for item B should be provided for these employees. Consultants must possess and present evidence of the following: (1) knowledge and experience in the development of traffic operational and long range transportation improvement plans; generally accepted traffic forecasting practices; (2) availability of, and experience with, various state-of-the-art traffic forecasting tools including computerized traffic simulation models; (3) recent experience involving traffic forecasting studies of adequate complexity for highway planning and design purposes. In addition,

consultants pre-qualified in this category must be able to collect, or acquire, traffic data that may be needed for forecasting studies.
Qualifying experience should be within the last five years and the forecasting studies should have been performed for the Kentucky Transportation Cabinet, another state highway agency, the Federal Highway Administration, or a metropolitan planning organization or major local public works agency. Examples of studies that would normally be deemed to be of adequate complexity would include: system-wide forecasting studies; new highways of regional significance; corridor studies involving multiple alternatives, new alignments and estimation of residual traffic; turning movement stimulation and forecasting; bypass studies; and interchange justification studies.

Projects shown in a firm's experience that are not for the Kentucky Department of Highways shall include the name of an individual directly responsible for the project and any performance evaluations or other documentation received at the conclusion of the project.

The firm shall provide a listing of all equipment available for the forecasts including hardware and software (including traffic modeling) and demonstrate their knowledge and previous use of the indicated programs. KYTC's personal knowledge of the firm's previous work and staff abilities will also be considered. (REVISED 3/02)

MULTIMODAL SERVICES/RAIL SYSTEMS PLANNING -

Part time employees may not be used to address the basic requirement for full time staff. Part time employees may be shown as a part of the total staff size. An explanation of the availability of part time employees including hours available through the year and hours available for projects may be used to enhance the firms experience history. (Rev 9/03)

The full time employee must be directly involved in the proposed rail systems planning work. Previous experience in rail systems planning work and related activities must be shown and substantiated. Previous related activities could include rail planning studies or state rail plans, various types of other planning work, etc. The number of planners on staff will be considered. If this experience involved other firms or agencies, the employee's role should be clearly explained for each project. Applicable education and technical training shall also be provided.

Information relating to past experience may also be provided for each additional employee to be considered for pre-qualification. The information detailed above for Item B should be provided for these employees. Projects shown in a firm's experience that are not for the Kentucky Department of Highways shall include the name of an individual directly responsible for the project and any performance evaluations or other documentation received at the conclusion of the project

The firm shall provide a listing of all equipment available for the studies including hardware and software and demonstrate their knowledge and previous use of the indicated programs.
KYTC's personal knowledge of the firm's previous work and staff abilities will also be considered.
The firm should provider a cover sheet, or separate section of their submittal, that lists the previous relevant rail systems planning work and previous relevant related work activities - (REVISED 3/02)

MULTIMODAL SERVICES/TRANSIT TECHNICAL STUDIES, MANAGEMENT AND MARKETING/ADVERTISING - Prior experience and knowledge in transit studies, urban transportation studies and computerized transit software. Prior experience in marketing and advertising for transit systems. Knowledge of Urban Mass Transportation administration procedures. (REVISED 7/94)

MULTIMODAL SERVICES/URBAN TRANSPORTATION STUDIES -

A firm must have knowledge and experience in the development of comprehensive urban transportation studies including the analysis of existing and future deficiencies and the development of traffic operational and long-range transportation improvement plans.
A firm must have availability of and experience with state-of-the art traffic modeling software.

A firm must possess recent experience in the development and calibration of urban area traffic simulation models.

A firm must have the availability of GIS software and experience with mapping and transportation related applications.

In addition a firm must have consultants pre-qualified in this category and must be able to collect and forecast socioeconomic data, direct public involvement efforts and prepare cost estimates for recommended improvements. Qualifying experience should be within the last five years and the work should have been performed for the Kentucky Transportation Cabinet, another state highway agency, the Federal Highway Administration, or a metropolitan planning organization or major local public works agency. KYTC's assessment of staff capabilities and overall performance on previous work known to cabinet capabilities and overall performance on previous work known to Cabinet staff, including quality of work and timely completion, will also be considered. (REVISED 3/02)

BIKEWAY PLANNING -

Part time employees may not be used to address the basic requirement for full time staff. Part time employees may be shown as a part of the total staff size. An explanation of the availability of part time employees including hours available through the year and hours available for projects may be used to enhance the firms experience history. (Rev 9/03)

The full time employee must be directly involved in the proposed bikeway planning work. Previous experience in bikeway planning work and related activities must be shown and substantiated. Previous related activities could include transportation planning or corridor studies, various types of other planning work, etc. The number of planners on staff will be considered. If this experience involved other firms or agencies, the employee's role should be clearly explained for each project. Applicable education and technical training shall also be provided. Completion of a Bicycle Facility Planning and Design Workshop could substitute for previous related work activities.

Information relating to past experience may also be provided for each additional employee to be considered for pre-qualification. The information detailed above for item B should be provided for these employees. Projects shown in a firm's experience that are not for the Kentucky Department of Highways shall include the name of an individual directly responsible for the project and any performance evaluations or other documentation received at the conclusion of the project.

The firm shall provide a listing of all equipment available for the studies including hardware and software and demonstrate their knowledge and previous use of the indicated programs.

KYTC's personal knowledge of the firm's previous work and staff abilities will also be considered.

The firm should provide a cover sheet, or separate section of their submittal, that lists the previous relevant bikeway planning work and the previous relevant related work activities. (REVISED 3/02)

CONGESTION MANAGEMENT ENGINEERING -

A firm shall have a minimum staff of one (1) full time employee as defined above that is directly involved in activities relating to congestion mitigation projects. Part time employees may not be used to address the

basic requirement for full time staff. Part time employees may be shown as part of the total staff size. An explanation of the availability of part time employees including hours available through the year and hours available for projects may be used to enhance the firms experience history.
A Professional Engineer registered in Kentucky must be included in the mix of full time employees dedicated to the project. The Professional Engineer submitted for pre-qualification shall be directly involved in the congestion mitigation activities. Previous experience in congestion mitigation work and related activities must be shown. It must also include experience with urban transportation studies, ITS planning, traffic demand modeling, traffic simulation modeling and Air Quality Conformity analysis, etc. If this experience involved other firms or agencies, the employee's role should be clearly explained for each project. Applicable education and technical training shall also be provided.

Information relating to past experience may also be provided for each additional employee to be considered for pre-qualification. The information detailed above for Item B should be provided for these employees.

Projects shown in a firm's experience that are not for the Kentucky Department of

Highways shall include the name of an individual directly responsible for the project and any performance evaluations or other documentation received at the conclusion of the project.

The firm shall provide a listing of all equipment available for the work including hardware and software and demonstrate their knowledge and previous use of the indicated programs.
KYTC's personal knowledge of the firm's previous work and staff abilities will also be considered.
(REVISED 3/02)

Engineering and Related Service User-Operations Division-ITS Branch (502-564-4556)

INTELLIGENT VEHICLE/HIGHWAY SYSTEM (IVHS) -

Intelligent Transportation Systems (ITS)/Central Concepts

These categories of engineering and related services are generally defined as the application of advanced computing and communication technologies to the transportation field. Any firm desiring ITS pre-qualification must meet the following Central Business Requirements (CBR):

ITS National Architecture and Kentucky Information Technology Architecture Conformance. The firm shall provide service in support of and in conformance with these architectures. The firm shall demonstrate and maintain such expertise in these architectures as to work cooperatively with the Commonwealth and perform the contracted services:

Technology Awareness and Proficiency - The firm is expected to demonstrate and continually build its awareness of and proficiency in their contracted service category to enable a timely and professional response to Commonwealth needs:

Emerging Technologies - The Commonwealth will look to the ITS consultant community to provide leadership and expertise in evaluating emerging technologies. The firm is expected to continually maintain an awareness of emerging technologies and provide the Commonwealth with information on project experience, research and development;

Project Management Proficiency - The firm is to present and maintain adeptness at Project Management through project performance and the use of proven methods and techniques;

Working Knowledge of the Commonwealth - The firm is to develop and maintain a broad-base knowledge of the Cabinet. This is to include goals, strategic and tactical plans and priorities, service delivery operations and other business requirements;
Public Sector Experience - The firm is desired to have extensive public sector experience in the planning, implementing and managing of technology resources. The firm shall be knowledgeable of applicable state and federal laws, funding requirements and regulations in support of ITS issues;

Technical Capacity - The firm shall demonstrate and maintain the expertise, awareness and proficiency in their contacted service category to enable timely response to Commonwealth needs and;

Business Resources - The firm shall demonstrate and maintain the financial capacity, capital, or other resources; and the administrative controls and policies to perform the service. The firm may be required to substantiate fiscal soundness and administrative controls satisfactory to perform the service.

A full service (FS) consultant is defined as a firm with both the technical capacity and the business resource capacity to perform the services. A niche service (NS) consultant is defined as a firm with unique technical expertise or capacity to perform the services. Firms may qualify under both so long as they meet the individual criteria

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SERVICE/USE CONCEPT MATRIX

Intelligent Transportation Systems (ITS)/ITS System Integrator

Concepts - Full service consultant who can take a vision or concept and develop an application/project to maturity and continue to operate the system.

This category of work is defined as the integration of advanced computer; communications and control technologies for advanced transportation information management applications and technologies. This work includes the planning, designing, deploying/building and operating an application or project. A firm petitioning to become pre-qualified in this area shall demonstrate competence in and be capable of providing the following:

Technical Capacity - the necessary engineering and related services in each of the following areas: ITS Architecture Development; Project Planning and Design; Project Management; Systems Integration; Project/Installation Management; Procurement and installation; Software Development/Modification; Operations; and training and,

Business Resources - the necessary financial capacity, capital, or other resources; and the administrative controls and policies to perform the service.

The firm shall employ:

A minimum of one professional engineer with a background in transportation and traffic engineering and experienced in the activities associated with the planning, development, management, and operations of related advanced transportation technologies who maintains the appropriate technology awareness and proficiency;

Additional professionals with backgrounds in electrical and systems engineering, human factors, public relations, group facilitation, computer science and systems integration sufficient to perform the contracted services who maintain the appropriate technology awareness and proficiency;

Sufficient administrative staff and to perform the contracted services; and

Sufficient financial staff and resources to perform the contracted services;

Additionally, the firm shall have a member of the project team who has completed the USDOT "Using the

National IT Architect for Deployment" training Course.

Intelligent Transportation Systems (ITS)/ITS Deployment and Operations Integrator

Concepts - Full service consultant who can take a study or plan and design and develop/build an application/project to maturity and continue to operate the system.

This category of work is defined as the design, development and operation of advanced transportation technology applications/projects on behalf of in collaboration with the Cabinet or local agency. This work includes the designing, deploying/building and operating and application or project. A firm petitioning to become pre-qualified in this area shall demonstrate competence in and be capable of providing the following:

Technical Capacity - the necessary engineering and related services in each of the following areas; Project Design; Project Management; Systems Integration; Project/Installation Management; Procurement and Installation; Software Development/Modification; Operations; and Training and, Business Resources – the necessary engineering financial capacity, capital, or other resources; and the administrative controls and policies to perform the service.

Business Resources - the necessary engineering financial capacity, capital, or other resources and the administrative controls and policies to perform the service.

The firm shall employ:

A minimum of one professional engineer with a background in transportation and traffic engineering and experienced in the activities associated with the development, management and operations of related advanced transportation technologies who maintains the appropriate technology awareness and proficiency;

Additional professionals with backgrounds in electrical and systems engineering, human factors, public relations, computer science and systems integration sufficient to perform the contracted services who maintain the appropriate technology awareness and proficiency;

Sufficient administrative staff to perform the contracted services; and

Sufficient financial staff and resources to perform the contracted services;

Additionally, the firm shall have a member of the project team who has completed the USDOT "Using the National ITS Architecture for Deployment" training course.

Intelligent Transportation Systems (ITS)/ITS Project/Systems Deployment

Concepts – Full service consultant who can take a vision or concept and research technology trend and develop a system.

This category of work is defined as the research, planning, design and development of ITS projects or systems for multi-state, statewide, regional, corridor, or project development. This work includes the planning, designing and deploying/building an application or project. A firm petitioning to become pre-qualified in this area shall demonstrate competence in and be capable of providing the following:

Technical Capacity – the necessary engineering and related services in each of the following areas; ITS Architecture Development; Project Planning and Design; Project Management; Systems Integration; Project/Installation Management; Procurement and Installation; Software Development/Modification; and, Business Resources – the necessary financial capacity, capital, or other resources and the administrative controls and policies to perform the service.

The firm shall employ:

A minimum of one professional engineer with a background in transportation and traffic engineering and experienced in the activities associated with t he researching, planning, designing and

Additional professionals with backgrounds in electrical and systems engineering, human factors, public relations, group facilitation, computer science and systems integration sufficient to perform the contracted services who maintain the appropriate technology awareness and proficiency;

Sufficient administrative staff to perform the contracted services; and

Sufficient financial staff and resources to perform the contracted services;

Additionally, the firm shall have a member of the project team who has completed the USDOT "Using the National ITS Architecture for Deployment" training course.

Intelligent Transportation Systems (ITS)/ITS Architecture Development

Concepts – Niche service consultant who can take a vision of concept and develop on ITS architecture. This category of work is defined as the research, planning, design and development of ITS Architectures for multi-state, statewide, regional, corridor, or project planning. A firm petitioning to become pre-qualified in this area shall demonstrate competence in and be capable of providing the following:

Identification of key stakeholders and their interrelationships including data collection and analysis;

Description of the required activities or functions;

Description of the interconnections and interdependencies between functions;

Definition of a blueprint for the integration of all systems; and

Completion of proposed architecture

The firm shall employ:

A minimum of one professional engineer with a background in transportation and traffic engineering and experienced in the activities associated with the researching, planning, designing and development of ITS Architectures who maintains the appropriate technology awareness and proficiency;

Additional professionals with backgrounds in electrical and systems engineering, human factors, public relations, group facilitation, computer science and systems integration sufficient to perform the contracted services who maintain the appropriate technology awareness and proficiency;

Additionally, the firm shall have a member of the project team who has completed the USDOT “Using the National ITS Architecture for Deployment: training course.

Intelligent Transportation Systems (ITS)/ITS Concept Development Feasibility Studies

Concepts - Niche service consultant who can take a vision or concept and research/evaluate potential advanced solutions.

This category of work is defined as the researching/investigating and identifying/evaluating potential advanced technology solutions ands emerging technologies to transportation needs. This work includes the research, planning, and design of an application/project. A firm petitioning the following:

Leadership and expertise in evaluating and developing emerging technologies;

Identification of the problem areas and risk factors and their interrelationships;

Investigation of the technologies or functions including data collection and analysis to solve the problems;

Identification of the interconnections and interdependencies between technologies or functions;

Consideration of the feasibility of real-world implementation; and

Completion of proposed development or study.

The firm shall employ:

A minimum of one professional engineer with a background in transportation and traffic engineering and experienced in the activities associated with the researching, planning, designing and developing of ITS projects who maintains the appropriate technology awareness and proficiency;

Additional professionals with backgrounds in electrical and systems engineering, human factors, transportation planning, group facilitation, computer science and systems integration sufficient to perform the contracted services who maintain the appropriate technology awareness and proficiency;

Additionally, the firm shall have a member of the project team who has completed the USDOT "Using the National ITS Architecture for Deployment" training course.

Intelligent Transportation Systems (ITS)/ITS Communications Planning and Development

Concepts - Niche Service consultant who can take a vision or concept and research/evaluate; plan; design; and develop advanced communications applications/projects.

This category of work is defined as the research, planning, design and development/building of ITS communications projects or systems for multi-state, statewide, regional, corridor, or project development. A firm petitioning to become pre-qualified in this area shall demonstrate competence in and be capable of providing the following:

Identification of the problem areas, the key stakeholders and their interrelationships;

Description of the required activities of functions to solve the problems;

Definition of the interconnections and interdependencies between functions and

Completion of a plan/design for the integration of all systems.
The firm shall employ:

A minimum of one professional engineer with a background in communications and experienced in the activities associated with the researching, planning, designing and developing of ITS communications project who maintains the appropriate technology awareness and proficiency;

Additional professionals with backgrounds in electrical and systems engineering transportation and traffic engineering, human factors, computer science and systems integration sufficient to perform the contracted services who maintain the appropriate technology awareness and proficiency;

Additionally, the firm shall have a member of the project team who has completed the USDOT "Using the National ITS Architecture for Deployment" training course.

Intelligent Transportation Systems (ITS)ITS System Design/Deployment

Concepts - Niche service consultant who can take a study or plan and develop in-depth design/deployment of a system.

This category of work is defined as the in-depth design and deployment of advanced transportation technology systems. A firm petitioning to become pre-qualified in this area shall demonstrate competence in and be capable of providing the following:

Identification of the problem areas and risk factors and their interrelationships;

Description of the required activities or functions to complete the design;

Understanding of the design standards;

Completion of design including the integration and development of the system; and
Deployment of the technology system.

The firm shall employ:

A minimum of one professional engineer with a background in traffic and design engineering and experienced in the activities associated with the researching and designing of advanced transportation technology systems who maintains the appropriate technology awareness and proficiency;

Additional professionals with backgrounds in electrical and systems engineering, human factors, computer science and systems integration sufficient to perform the contracted services who maintain the appropriate technology awareness and proficiency;

Additionally, the firm shall have a member of the project team who has completed the USDOT "Using the National ITS Architecture of Deployment" training course.

Intelligent Transportation Systems (ITS)/ITT Management and Operations

Concepts – Niche Service consultant who can manage and operate existing systems.

This category of work is defined as the management and operations of advanced transportation technology/systems in accordance with applicable project design and generally described in ITE Publication RP-030A. A firm petitioning to become pre-qualified in this area shall demonstrate competence in and be capable of providing the following:

Actions necessary for the proper functioning of the system (Operations);
Actions performed on an as needed basis (Response Maintenance);
Actions performed on a regularly scheduled basis (Preventative Maintenance);
Actions invoked to correct a recurring problem (Design Modification); and
Resources allocated for the proper functioning of the system (Management).

The firm shall employ:

A minimum of one professional engineer with a background in transportation and traffic engineering experienced in the activities associated with the managing and operating a transportation technology/systems who maintains the appropriate technology awareness and proficiency;

Additional professionals with backgrounds in electrical and systems engineering, transportation and traffic engineer, human factors, computer science and systems integration sufficient to perform the contracted services who maintain the appropriate technology awareness and proficiency;

Additionally, the firm shall have a member of the project team who has completed the USDOT "Using the National ITS Architecture for Deployment" (REV 3/02)

Intelligent Transportation Systems (ITS)/ITT Technology/System Evaluation

Concepts - Niche service consultant who can independently research and evaluate advanced technology/systems.

This category of work is defined as the independent research and evaluation of advanced transportation technology/systems in accordance with applicable project evaluation guidelines. A firm petitioning to become pre-qualified in this area shall demonstrate competence in and be capable of providing the following:

Independent identification of the problem areas and their interrelationships;

Clear understanding of the activities or functions associated with project;

Independent data collection and analysis; and

Completion of the evaluation in accordance with the applicable evaluation guidelines.

The firm shall employ:

A minimum of one professional engineer with a background in transportation and traffic engineering experienced in the activities associated with the researching and evaluating advanced transportation technology/systems who maintains the appropriate technology awareness and proficiency;

Additional professionals with backgrounds in electrical and systems engineering, transportation and traffic engineering, human factors, computer science and systems integration sufficient to perform the contracted services who maintain the appropriate technology awareness and proficiency;

Additionally, the firm shall have a member of the project team who has completed the USDOT "Using the National ITS Architecture for Deployment" training Course. (REVISED 3/02)

Engineering and Related Service User-Materials Division-Geotechnical Branch (502-564-2374)

GEOTECHNICAL ENGINEERING SERVICES - A firm must meet the following criteria:

Personnel - The firm must be staffed with the following:

A professional engineer registered in Kentucky.

An individual skilled in the field of geotechnical engineering as it relates to highway projects (roadways and bridges). This individual should preferably be a graduate civil engineer, but may be other if judged to possess necessary skills.

An individual skilled in a field of engineering geology as it relates to highway projects (roadways and bridges). This individual should preferably be a graduate geologist, but may be other if judged to possess necessary skills. If a firm is not satisfied with this type of personnel, the following exception could apply: The firm shall not be permitted to perform geotechnical engineering services in areas where the geological conditions are considered complex by the Geotechnical Branch.

Experience - The firm must provide evidence of recent experience in geotechnical engineering services for highway projects (roadways and bridges). The evidence shall include projects illustrating this type of experience with references (agency, project engineer or prime consultant with addresses and telephone numbers).

Subcontracting - A firm may elect to subcontract laboratory testing and/or drilling operations provided the subcontractor is a firm on the approved list. Any portion of work to be subcontracted must meet the approval of the Geotechnical Branch. (REVISED 7/94)

GEOTECHNICAL DRILLING SERVICES - A firm must meet the following criteria:

Experience - The vendor must provide evidence of recent experience in drilling services for highway projects (roadways and bridges). The evidence shall include projects illustrating this type of experience with reference (agency, project engineer or consultant with addresses and telephone numbers).

Equipment - The vendor must provide a list of available equipment (drill rigs and accessories) for soil sampling and rock coring.

Personnel - Drill crew supervisors must be experienced in obtaining rock cores for rock cut slope and bridge foundation design, rock line soundings, standard penetration tests, thin-walled tube samples, soil profile sampling and installing cased observation wells.

Evidence must be provided that the drill crew supervisors have a minimum of three years experience in the above aforementioned operations for highway projects (roadway and bridges). A drill crew supervisor is defined as the person on the drill crew field party who is responsible for the drilling operations. (REVISED 7/94)

GEOTECHNICAL LABORATORY SERVICES - A firm must meet the following criteria:

Experience - The firm must provide evidence of recent experience in geotechnical laboratory testing services. The evidence shall include projects illustrating this type of experience with references (agency, project engineer or consultant with addresses and telephone numbers).

Equipment - The firm must provide a list of available laboratory equipment for soil and rock testing. Available laboratory equipment required for pre-qualification is all of the equipment listed on Page 3 of TC 64-541 (Exhibit 15-12) with the exception of consolidated undrained triaxial with pore pressure measurements and one-dimensional consolidation. Sufficient equipment must be available to perform the required tests in a timely manner.

Personnel - The laboratory technicians must be experienced in geotechnical testing as listed on Page 4 of TC 64-532 (Exhibit 15-12). AASHTO Materials Reference Laboratory (AMRL) - the firm shall provide verification from AMRL that they have applied and paid annual fees for (1) on-site inspection of apparatus and procedures used in the testing of soils and (2) Soil Proficiency Test Sample Program. Firms currently enrolled in the program shall attach copies of all on-site inspection reports and soil proficiency test results. For details concerning these services, the following address is provided:

AASHTO Materials Reference Laboratory
National Institute of Standards and Technology
Building 226, Room A365
Gaithersburg, MD 20899
(REVISED 7/94)

Engineering and Related Service User-Operations Division-Bridge Maintenance Branch (502-564-4556)

BRIDGE MAINTENANCE SERVICES/INDEPTH STRUCTURE INSPECTION - To be pre-qualified for in-depth inspection, the consultant must meet the following requirements:

Demonstrate structural design competence.

Demonstrate experience with performing inspections for NBIS purposes, or demonstrate an understanding of NBIS requirements for such inspections by demonstrating knowledge of the FHWA Bridge Inspectors Training Manual 70 (or later edition) and the Recording and Coding Guide for Structural Inventory and Appraisal of the Nations Bridges; and

Demonstrate an understanding of the access requirements and traffic control ramifications of conducting such inspections by providing a narrative describing what types of access equipment might be required and how traffic control would be handled (which should identify whether these can be provided in house or obtained through other means). (REVISED 3/02)

BRIDGE MAINTENANCE SERVICES/UNDERWATER STRUCTURE INSPECTION - To be pre-qualified for underwater structure inspection, the consultant must meet the following requirements:

Demonstrate experience with performing inspections for NBIS purposes or demonstrate an understanding of NBIS requirements for such inspections by demonstrating knowledge of the FHWA Bridge Inspectors Training Manual 70 (or later edition) and the Recording and Coding Guide for Structural Inventory and Appraisal of the Nations Bridges; and

Have a staff member who is a Kentucky registered professional engineer and also a diver because all underwater inspections are required to be performed by a professional engineer. (REVISED 3/02)

BRIDGE MAINTENANCE SERVICES/ENVIRONMENTAL MONITORING, WASTE MANAGEMENT AND PAINT INSPECTION - To be pre-qualified for this type of work, the consultant must demonstrate experience with this type of project including the following:

Developing plans for removing hazardous paint systems that meet EPA requirements. This shall include preliminary testing as required, environmental monitoring as required during construction, designing required containment techniques and preparing contractor plans.
Performing construction inspection of the contractor’s painting.
Overseeing the collection and disposal of any hazardous material generated by the project. (REVISED 7/94)

Engineering Service User-Aeronautics Division (502-564-4480)

AERONAUTIC SERVICES - The firm in question will have in its permanent employment a professional engineer registered in the Commonwealth of Kentucky.

Knowledge and prior experience in the areas of aviation systems planning, airport master planning, airport design, airport development project construction inspection and/or airport noise analysis and the requirements and procedures of the Federal Aviation Administration is required. (REVISED 7/94)

Engineering and Related Service User-Environmental Analysis Division (502-564-7250)

ENVIRONMENTAL SERVICES/FISHERIES

EDUCATION GRADUATE AND UNDERGRADUATE TRANSCRIPTS REQUIRED

BS in Biology or Environmental Science including 30 semester hours in biology with 3 three-hour courses related to fisheries such as fisheries biology, limnology, fisheries management, fisheries science, ecology, and ichthyology.*

QUALIFYING EXPERIENCE PRESENT CURRICULUM VITAE
4 years with a BS
2 years with a M S
2 years with a Ph.D.**

Qualifying experience is considered to be work having to do with the ecology or biology of freshwater fishes.

It must include the following:

1. A field study, publication or presentation at a scientific meeting demonstrating a knowledge of the taxonomy, sampling and ecology of freshwater fishes.
2. One-year experience in the assessment of impacts of construction projects on aquatic life, including mitigation measures.
3. Work indicating a knowledge of Kentucky and Federal rare, threatened and endangered species of freshwater fishes.

EQUIPMENT LIST
1. Taxonomic references sufficient to identify the fishes of Kentucky to species level.
2. Seines.
*Experience may substitute for education in exceptional cases if expertise in area can be proven by written examples of work.
**Ph.D. dissertation may substitute for one year's experience if it involved the biology or ecology of freshwater fish. (REVISED 11/98)

ENVIRONMENTAL/FRESHWATER MACROINVERTEBRATES

EDUCATION GRADUATE AND UNDERGRADUATE TRANSCRIPTS REQUIRED
BS in Biology or Environmental Science including 30 semester hours in biology with 3 three-hour courses related to the taxonomy and biology of macroinvertebrates of freshwater lakes and streams and 2 three-hour courses related to aquatic biology or aquatic ecology.*

QUALIFYING EXPERIENCE PRESENT CURRICULUM VITAE
4 years with a BS
2 years with a MS
2 years with a Ph.D.**
Qualifying experience is considered to be work having to do with the ecology or biology of freshwater invertebrates. It must include the following:
1. A field study, publication or presentation at a scientific meeting demonstrating a knowledge of the taxonomy, sampling and ecology of freshwater invertebrates.
2. One-year experience in the assessment of impacts of construction projects on aquatic life, including mitigation measures.
3. Work indicating a knowledge of Kentucky and Federal rare, threatened and endangered species of aquatic invertebrates.

EQUIPMENT LIST

1. Taxonomic references sufficient to identify most aquatic invertebrates to at least genus and pelecypods, gastropods and crustaceans to species. If an expert is to be used in the identification of certain groups, his/her name and the group(s) to be identified should be specified.
2. Dip net with fine mesh and/or a surber sampler.
3. Stereo dissection microscope.
*Experience may substitute for education in exceptional cases if expertise in area can be proven by written examples of work.
**Ph.D. dissertation may substitute for one year's experience if it involved the biology or ecology of aquatic invertebrates. (REVISED 11/98)

ENVIRONMENTAL/WATER QUALITY

EDUCATION GRADUATE AND UNDERGRADUATE TRANSCRIPTS REQUIRED
BS in Chemistry, Biology, Environmental Science, Sanitary Engineering, Geology including 12 semester hours in chemistry-related courses including one course related specifically to water chemistry of streams and lakes. *

QUALIFYING EXPERIENCE PRESENT CURRICULUM VITAE
4 years with a BS
2 years with a MS
2 years with a Ph.D.**

Qualifying experience is considered to be work having to do with the chemistry of freshwater. It must include the following-.
1. A field study, publication or presentation at a scientific meeting demonstrating knowledge of the sampling and determination of water chemistry of freshwater streams and/or lakes.
2. One-year experience in the assessment of impacts of construction projects on water chemistry, including measures to reduce these impacts.

EQUIPMENT LIST
Capacity to perform the following tests:
Color
Turbidity
PH
Iron
Nitrate Nitrogen
Alkalinity
Acidity
Chloride
Ammonia Nitrogen
Sulfate
Hardness
Specific Conductance
Orthophosphate
Dissolved Oxygen
Discharge

*Experience may substitute for education in exceptional cases if expertise in area can be proven by written examples of work.
**Ph.D. dissertation may substitute for one year's experience if it involved the biology or ecology of plants. (REVISED 11/98)

ENVIRONMENTAL/BOTANY

EDUCATION GRADUATE AND UNDERGRADUATE TRANSCRIPTS REQUIRED

BS in Biology or Environmental Science including 30 semester hours in biology with 3 three-hour courses related to botany such as plant taxonomy, plant ecology, dendrology, botany, plant physiology, silviculture, etc.*

QUALIFYING EXPERIENCE PRESENT CURRICULUM VITAE
4 years with a BS
2 years with a MS
2 years with a Ph.D. * *

Qualifying experience is considered to be work having to do with the ecology or biology of plants It must include the following:
1. A field study, publication or presentation at a scientific meeting demonstrating knowledge of the taxonomy, sampling and ecology of plants.
2. One-year experience in the assessment of impacts of construction projects on plants and plant communities, including mitigation measures.
3. Work indicating a knowledge of Kentucky and Federal rare, threatened and endangered species of plants.

EQUIPMENT LIST
1. Taxonomic references sufficient to identify plants to species level.
2. Plant press.
'Experience may substitute for education in exceptional cases if expertise in area can be proven by written examples of work.
**Ph.D. dissertation may substitute for one year's experience if it involved the biology or ecology of plants.
(REVISED 11/98)

ENVIRONMENTAL/TERRESTRIAL ZOOLOGY

EDUCATION GRADUATE AND UNDERGRADUATE TRANSCRIPTS REQUIRED
BS in Biology or Environmental Science including 30 semester hours in biology with 3 three-hour courses related to terrestrial zoology such as vertebrate zoology, wildlife management, wildlife ecology, mammalogy, herpetology or ornithology.*

QUALIFYING EXPERIENCE PRESENT CURRICULUM VITAE
4 years with a BS
2 years with a MS
2 years with a Ph.D.**

Qualifying experience is considered to be work having to do with the ecology or biology of terrestrial animals. It must include the following:
1. A field study, publication or presentation at a scientific meeting demonstrating knowledge of the taxonomy, sampling and ecology of terrestrial animals.
2. One-year experience in the assessment of impacts of construction projects on terrestrial animals and wildlife habitat including mitigation measures.
3. Work indicating a knowledge of Kentucky and Federal rare, threatened and endangered species of terrestrial animals.

EQUIPMENT LIST
1. Taxonomic references sufficient to identify animals to species level.
2. Mist nets.
3. Caving lights.
4. Small mammal traps.
*Experience may substitute for education in exceptional cases if expertise in area can be proven by written examples of work.

**Ph.D. dissertation may substitute for one year's experience if it involved the biology or ecology of terrestrial animals. (REVISED 11/98)

ENVIRONMENTAL/WETLANDS

EDUCATION GRADUATE AND UNDERGRADUATE TRANSCRIPTS REQUIRED
BS in Biology or related to natural sciences including 30 semester hours in biology. With at least eight (8) semester hours (or 6 semester hours with labs) of course related to botany and flora, one 3-hour course in ecological analyses, habitat assessments or plant community assessments. At least 1 three-hour course in vertebrate biology or classification such as ichthyology, herpetology, entomology, ornithology or mammalogy.* (REVISED 3/02)

REQUIRED TRAINING - CERTIFICATES REQUIRED

Training in the application of the Corps of Engineers Wetland Delineation Manual, 1987. Training must satisfy pre-requisite requirements for the Wetland Delineator Certification Program.

QUALIFYING EXPERIENCE PRESENT CURRICULUM VITAE - Written examples required
3 years experience in practicing wetland delineation and mitigation under the US ACE supervised 404 program.

NOTE: MS and Ph.D. degrees may substitute for experience for up to two (2) years, only if the degree was completed with thesis or two years of research work related to wetlands. An M.A.degree may qualify for one (1) year experience if it relates to wetlands.

Qualifying experience applies to the individual and is considered to be work having to do with the classification, delineation and/or mitigation of jurisdictional wetlands. Qualifying experience must include the following:

Project leader on US ACE approved or reviewed wetland delineation projects; may include any example where wetlands were determined or delineated and underwent US ACE review; AND,
Project Leader of field study and author of a publication demonstrating competence in sampling and analytical procedures involving wetlands; OR,
Project Leader for wetland mitigation involving creation, restoration or enhancement of wetlands used in 404 permits; OR,
Project Leader for monitoring studies and reports of wetlands that have been reviewed and approved by US ACE. ,

EQUIPMENT AND REFERENCE MATERIAL List Equipment and Material

Sampling equipment necessary for wetlands analysis shall include (1) a soil probe, auger, or space, for soil samples, (2) Munsell soil color chart for hydric soil determinations and (3) taxonomy reference books for plant identification, (4) the USFWS publication entitled National List of Plant Species that Occur in Wetlands: Kentucky edition or Region 1 Northeast and (5) plant press and collection bags (6) stereo dissection microscope for plant identification.

*Education cannot substitute entirely for experience requirement. MS and Ph.D. degrees in the area of wetland may qualify for up to two- (2) year's experience. MA degrees may qualify up to one (1) year experience - **Education and experience cannot be substituted for training. (REVISED 3/02)

ENVIRONMENTAL/PREHISTORIC AND HISTORIC ARCHAEOLOGY

PROFESSIONAL QUALIFICATIONS

The principal investigator is responsible for the quality of the archaeological work and resulting report. AU Section 106 related investigations should be carried out under the direction of a principal investigator. He or she must ensure that all other project personnel have sufficient experience to perform assigned duties.

Principal Investigator
The Secretary of the Interior's Standards for Professional Qualifications in Archaeology are those used by the National Park Service and have been previously published in the Code of Federal Regulations, 36 CFR Part 61. These are quoted below:

The qualifications define minimum education and experience required performing identification, evaluation, registration, and treatment activities. In some cases, additional areas or levels of expertise may be needed, depending upon the complexity of the task and the nature of the historic properties involved. In the following definitions a year of full-time professional experience need not consist of a continuous year of full-time work but may be made up of discontinuous periods of full-time work adding up to the equivalent of a year of full-time experience.

Archaeology
The minimum professional qualifications in archaeology are a graduate degree in archaeology, anthropology, or closely related field plus:

At least one year of full-time professional experience or equivalent specialized training in archaeological research, administration or management;

At least four months of supervised field and analytic experience in general North American archaeology; and

Demonstrated ability to carry research to completion.

In addition to these minimum qualifications, a professional in prehistoric archaeology shall have at least one year of full-time professional experience at a supervisory level in the study of archaeological resources of the prehistoric period. A professional in historic archaeology shall have at least one year of full-time professional experience at a supervisory level in the study of archaeological resources of the historic period.

In addition to the previous criteria, the SEPO recommends that 8 of the 12 months of professional field experience be in Kentucky or the eastern United States.

Field Supervisor

Survey Projects (Phase 1)
1. BA in Anthropology or closely related field-,
2. One-year field experience;
3. A knowledge of Ohio valley archaeology.

Testing Projects (Phase 11)
1. Two academic years of graduate school in Anthropology or closely related field;
2. Demonstrated ability to analyze artifacts and write reports;
3. One-year field experience, of which four months must be excavation;
4. A knowledge of Ohio Valley archaeology.

Mitigation Projects (Phase 111)
1. MA in Anthropology or closely related field;
2. One-year field experience, of which four months must be excavation;

3. A knowledge of Ohio Valley archaeology. (REVISED 11/98)

ENVIRONMENTAL/NOISE IMPACT ANALYSES

EDUCATION
B.S. in Engineering, Environmental Sciences or BA with course work related to transportation related course work. At least 1 semester hour of computer sciences.

QUALIFYING EXPERIENCE

1 year of co-authored base studies with BS or BA

6 months of co-authored based studies with M>S>, MA, or Ph.D.

Qualifying experience is considered to be work associated with noise impact assessment and modeling techniques and should include the following:

Research or documentation, which demonstrates knowledge of noise, impacts assessment and engineering principles. Attendance of noise impact assessment and abatement courses offered by FHWA or independent consultants are required.

Experience in field noise sampling along with collaboration of documentation required for submittal of a noise impact analysis. Including noise levels and abatement measures as required by FHWA 23 CFR Part 772 "Procedures for Abatement of Highway Traffic Noise and Construction Noise."

EQUIPMENT

FHWA approved noise prediction computer models
STAMINA2.0/OPTIMA (Highway) (until December 2002)
TNM 1.1 (all new projects)
Computer hardware utilized for analyses
Noise level meter or analyzer
(REVISED 3/02)

ENVIRONMENTAL/AIR QUALITY ANALYSES

EDUCATION
BS in Engineering, Environmental Sciences, or Meteorology, including 12 semester hours of air quality related courses, i.e. meteorology, engineering principles, or dispersion modeling. At least 3 semester hours of computer sciences. BA With course work related to transportation planning.

QUALIFYING EXPERIENCE
4 years with a BS or BA
2 years with a MS or MA
2 years with a Ph.D. (I year if research or dissertation related to air quality principles)

Qualifying experience is considered to be work associated with air quality principles and modeling techniques and should include the following:
Research or documentation, which demonstrates knowledge of, airs pollution meteorology, dispersion modeling, and engineering principles.
Affiliation with a professional society related to air quality.

One-year experience in the assessment of impacts of construction projects on ambient air quality including mitigation measures as required by the Clean Air Act Amendments of 1990.
Work indicates knowledge of Kentucky and Federal Air Quality Regulations.

EQUIPMENT
State of the art computer models, which consists of-.
A. Mobile Source Emissions Model: MOBILE5a
b. Dispersion Model: CAL3QHC
F-I Computer hardware utilized for analyses. (REVISED 11/98)

STREAM MITIGATION

A firm shall have at least one engineer registered in Kentucky who will be directly involved in project development, and at least one person with training up to Rosgen Level 4. (The Rosgen method is a classification-based natural stream design approach that incorporates elements of analog and empirical design methods. It is the most commonly used scheme for the classification of streams. The Kentucky Division of Water, a state regulatory agency has adopted Rosgen's classification scheme. A series of four training courses (Levels I to IV) are offered by Mr. Rosgen.} The personnel employed by the firm shall have expertise in natural stream channel design through previous experience, specialized training, education or a combination thereof. The overall qualification of a firm to perform natural stream channel design will be evaluated on the basis of past performance whether for the Transportation Cabinet or another agency. A firm requesting pre-qualification solely based on work with other agencies shall provide sufficient information to allow for an evaluation of past performance with that agency. This information must include the name of an individual within that agency directly responsible for the project and may include performance evaluation documents. Equipment shall be adequate to provide plans and studies utilizing computer drafting and digital terrain modeling techniques for an average type of project and to a format specified by the Cabinet. Sufficient financial information shall be provided to demonstrate the stability of the firm during the pre-qualification period.

Projects are typically divided into a data collection phase and design phase. A firm shall have the capability to provide the following products.

Stream Data Collection - Document stream conditions for reference streams, streams to be restored, or streams that will be disturbed by road construction projects. Product of Stream Data Collection portion of work is a report containing the following information:

Location map drawn to scale, with any notes necessary to help find the site
Stream and watershed areas accurately delineated on USGS 7 1/2' Quad maps
Watershed condition and hydrologic characteristics
Scale drawings of stream profile and cross-sections
Legible plan view sketches of stream area
Photographs referenced to the plan view (digital photos available upon request)
Description of existing riparian zone condition
Stream Ecology assessment. May be qualitative or quantitative depending on stream order.
Tabulated survey notes
Description of channel substrate, banks material and bank condition.
Tabular and graphical results of pebble counts
Tabular and graphical results of bar samples
Estimates of baneful depth with supporting field evidence
Estimates of baneful depth based on hydrologic and hydraulic analyses
Morphological (Rosgen) stream classification

Natural Stream Design - Provide stream channel construction/restoration plans in the detail required for construction of the project. The format for drawings shall conform to cabinet CADD standards. Product of work is a set of construction plans and reports containing the following elements:

Scale drawings showing the proposed work in plan, cross-section and profile.
Construction detail drawings as needed for clarity.
Planting details.
Description of measures to be used for creation of aquatic riparian habitat.
Description of material is used for in-stream habitat and for bank stabilization.
Monitoring plan, as requested.
Summary report documenting all design criteria, analyses and computations.
In addition to the above requirements, the firm shall have personnel that meet each of the pre-qualification requirements below:

Fisheries
Freshwater Macroinvertebrates
Water Quality
Botany
Some projects will require pre-qualification in Surveying and Geotech.

(REVISED 3/02)

ENVIRONMENTAL/SOCIO-ECONOMIC ANALYSIS

EDUCATION
Bachelor's degree with a major, minor, emphasis or area of concentration in planning or a bachelor's degree in transportation or a closely related field. Closely related fields include administration, business, economics, geology, geography, political science, and others.

QUALIFYING EXPERIENCE

One year with a bachelor's degree.

Qualifying experience is considered to be work to do with urban and regional planning or socio-economic impact analysis.

Work indicates a knowledge and familiarity with FHWA guidelines and regulations relative to socioeconomic analyses and community impact assessments of transportation projects.

Work on a community comprehensive plan including land use planning, population and economic base study analyses, etc.

CONTINUING EDUCATION

Courses in Relocation, Right of Way, Community Impact Assessments, Environmental Justice, Public Involvement, and Context Sensitive Design, Secondary and Cumulative Impacts and related topics.

ENVIRONMENTAL/CULTURAL-HISTORIC/ARCHITECTURAL

PROFESSIONAL QUALIFICATIONS
The Secretary of the Interior’s Standards for Professional Qualifications in History and Architectural History are those used by the National Park Service and they have been previously published in 36 CFR Part 61. Familiarity with Section 106 is also required. In order to be qualified in history and/or architectural history, the following education and experience should be met:

History: The minimum professional qualification in history is a graduate degree in history or a closely related field- or a bachelor's degree in history or a closely related field, plus one of the following:

(a) At least two years of full-time experience in research, writing, teaching, interpretation or other demonstrable professional activity with an academic institution, historical organization or agency, museum, or other professional institution; or
(b) Substantial contribution through research and publication, to the body of scholarly knowledge in the field of history.

Architectural History: The minimum professional qualifications in architectural history are a graduate degree in architectural history, art history, historic preservation, or closely related field, with course work in American architectural history; or a bachelor's degree in architectural history, art history, historic preservation, or closely related field, plus one of the following:
(a) At least two years of full-time experience in research, writing, or teaching in American architectural history or restoration architecture with an academic institution, historical organization or agency, museum, or other professional institution; or
(b) Substantial contribution through research and publication to the body of scholarly knowledge in the field of American architectural history.

SPECIFIC EXPERIENCE
Also in order to be qualified; experience and/or training and knowledge with FHWA guidelines and regulations relative to cultural-historic architectural analyses of transportation projects must be demonstrated. This includes familiarity with the Section 106 process and Section 4(f). (REVISED 11/98)

ENVIRONMENTAL/EIS WRITING AND COORDINATION

EDUCATION
Graduate of a college or university with a bachelor’s degree within the field of environmental analysis or a closely related field.

QUALIFYING EXPERIENCE
4 years with a BS
2 years with a M. S. /MA

Qualifying experience is considered to be work and training having to do with the preparation and coordination of environmental assessments and environmental impact statements. It should include or be demonstrated by the following:

1. Specific training in EA/EIS preparation, particularly NHI/FHWA training courses.
2. Work indicating one's knowledge and familiarity with FHWA guidelines and regulations in regard to EA/EIS writing and coordination.
3. Specific experience in EA/EIS preparation (as single or principal author).
4. Specific examples of EA/EIS'S authored (by project identification and client).
5. List other experience with technical writing and/or special environmental studies prepared. (REVISED 11/98)

ENVIRONMENTAL/UNDERGROUND STORAGE TANK AND HAZADORUS MATERIALS SITE RECONNAISSANCE AND SAMPLING

EDUCATION

BS in Chemistry, Chemical Engineering, Geology, Hydrogeology, Industrial Hygiene or closely related field of study. Specify individual personnel who will be performing each phase of work indicated by application for pre-qualification.

QUALIFYING TRAINING
Minimum 40 Hour Waste Site Worker Protection training to comply with OSHA CFR 1910.120(e)(2). Include proof of current certification, i.e., current 40-hour certification and/or current 8-hour annual refresher course certification for each individual listed to perform Detailed Site Reconnaissance/Site Sampling and Re-mediation Services (Phase 11 & 111).

QUALIFYING EXPERIENCE
Qualifying experience is considered to be on-site experience and familiarity with all aspects of the required scope of work for each phase or activity:

1. Phase I (Initial Site Assessments): Demonstrated proof of previous experience conducting ISAs for transportation projects including submittal of a sample Phase I report authored by the individual seeking pre-qualification. Specified personnel shall be familiar with:

a. Data-gathering techniques and accessing resources, e.g., resource agency records, soil surveys, Sanbourn Insurance maps, topographical maps, title searches, historic aerial photography, etc.
b. Federal and State environmental regulations and UST Programs and Procedures.
c. Walkover inspection documenting the physical characteristics of the site, i.e., stressed vegetation, odors, staining, drums, etc.
d. Site mapping techniques indicating the position of buildings, fencing, USTS, ASTS, staining, questionable areas, wells, surface water, etc.
e. Surface geology.
f. Technical writing skills for the execution of required reports.

2. Phase 11 (Preliminary Site Investigations): A minimum of two years experience conducting on-site Phase 11 (PSI) fieldwork is required. A sample Phase 11 report prepared by specified personnel, as well as information evidencing experience with the following, must be provided:

a. Complete familiarity with Federal and State EPA regulations regarding site sampling methods and procedures.

b. Complete familiarity with appropriates site-specific field instrumentation, analyses and documentation thereof.

c. Subsurface geology and groundwater parameters.

1. Site mapping and boring and sampling location selection criteria.
2. Technical writing skills for the execution of required reports.
3. Proof of Kentucky Division of Water Certification.

3. Tank Removal/Disposal
a. Proof of State Fire Marshall Certification must be presented.

4. Laboratory Services pre-qualification requires presentation of the following:
a. EPA Certification of in-house laboratory to perform prescribed material analyses according to EPA Standard Methods.
b. If laboratory services are supplied by an affiliate lists the affiliate.

5. Re-mediation Services requires a minimum of two-year experience in the underground storage tank site re-mediation field. Pre-qualification requires presentation of a sample of an approved Closure Assessment (Phase 111) prepared by specified personnel and data evidencing the following:

a. Complete familiarity with Federal and State EPA regulations.
b. Complete familiarity with site documentation required by the appropriate agencies, e.g., Risk Assessments, Corrective Action Plans, Health and Safety Plans, Closure Assessments, permits, etc.
c. Complete knowledge of the most cost-effective method of re-mediation, which protects public health and the environment under both Federal and State standards as appropriate.

6. Complete familiarity with Federal and State EPA regulations regarding site sampling methods and procedures.

7. Complete familiarity with appropriates site-specific field instrumentation, analyses and documentation thereof.

8. Affiliation or in-house licensed/certified hazardous materials transporter.
Present proof of certification.

9. Knowledge of appropriate permitted waste disposal facilities nearest to the affected site and the requirements thereof.

10. SFM certification for tank removals. Present proof of certification.

EQUIPMENT
Please list field equipment and instrumentation, as well as laboratory instrumentation, and drilling equipment if drilling and laboratory services are to be rendered in-house. If these services are to be contracted by an affiliate, please list the affiliated firms contracted to supply these services.
1. No specific or specialized equipment is required for the execution of Phase I Site Assessments.
2. Phase 11-PSI field inspectors and re-mediation personnel should be equipped with appropriate safety equipment to comply with OSHA regulations as well as the necessary field instrumentation. Field instrumentation should include the necessary site-specific instrumentation such as a PID (Photo Ionization Detector) or FID (Flame Ionization Detector), oxygen monitor, LEL (Lower Explosive Limit) monitor, Geiger counter, etc. Supply list of personal protection equipment and field instrumentation.
3. Analytical laboratory instrumentation necessary to perform materials analyses according to EPA Standard Methods if analyses are to be performed in-house. (REVISED 11/98)